US Army Corps of Engineers
Portland District

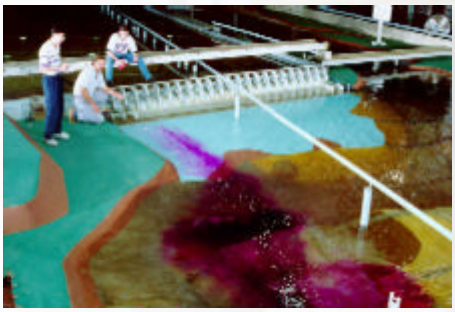
Hydraulic Design Section

The Portland District Hydraulic Design Section consists of eleven hydraulic engineers and two engineering technicians working together to provide hydraulic engineering solutions to a wide range of engineering challenges in the Columbia and Willamette River Basins and throughout the Northwest Region.

What We Do

Our specific functions vary widely, but include the following responsibilities:

- Perform hydraulic design of structures and provides consulting services on hydraulic problems.
- Provide technical assistance and hydraulic design support during planning, design and construction of fish passage facilities.
- Design and performs field prototype tests and investigations to evaluate hydraulic adequacy & performance and to diagnose problems at existing projects.
- Manage complex multi-disciplined and diverse teams including management of A-E contracts and consultants.
- Provides technical guidance, procurement, consultation and review of physical hydraulic model studies at WES and contract labs.
- Prepare inspection and evaluation of the hydraulic features for dam safety evaluations.



The Dalles 1:80 General Model at WES

Experience and Expertise

The Section offers a broad range of engineering and design experience, coupled with a long successful history of working with other CORPS resources (Districts, Waterways Experiment Station and the Hydroelectric Design Center) and the Architectural Engineering community. The District currently has several multidisciplinary open-end contracts for engineering services.

Dissolved Gas Abatement
Navigation Lock Filling and Emptying system design
Intake Towers, Spillways, and Outlet Works (high and low head)
Design of Fish Passage, Collection & Monitoring Facilities
Physical Hydraulic Modeling
Numerical Modeling – 1D, 2D and 3D (CFD) steady and unsteady
Design of temperature control tower, appurtenant facilities.
Flow measurement w/flow scintillation techniques
Flood Control Structures
Dam Safety Evaluations
Lock inspection, design and technical assistance
Emergency Response
Environmental Restoration
Open Channel Design
Fish Screen Design
Simulations of dewatering systems and fish facilities
Culvert Design w/ & w/out fish passage
Fish Ladder Design
Weir Design
Miter, Slide & Tainter Gates
Pipe and Penstocks
Pipe network design

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